Sound Transitions in Speech Recognition

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The distinctive acoustic properties of vowels or continuant consonants are most prominent in the middle part of the arbitrarily delimited periods attributed to them. Speech recognition procedures normally ignore the edges of such units and concentrate on the middle parts. What is a good approach to vowels and continuants, does not work for stop consonants whose middle part is either silent or only has week voicing that does not give any cue about the place of articulation.

This paper compares two approaches to the problem of stop consonants. The first approach keeps the recognition procedure simple by treating each stop as if it were two segments: a pre-release segment and a release segment. The first segment is only used to tell the program that a stop release will follow soon and to measure the length of the stop. Since most Hungarian stops are released, this approach has a very good percentage of successful recognition but it puts unnecessary burden on the shoulders of the people who do the segmentation.

The other approach gives up computational simplicity and tries to recognize stops at the edges. This approach has the advantage of a simpler segmentation and adding unreleased stops to the list of recognizable speech sounds.